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COAL

ALL six major countries of the captive area possess their own hard coal, but more than 80 percent of the coal reserves of this entire region are concentrated in the Silesian (also called Silesian-Ostravan) coal basin, where it has been mined since the late eighteenth century in an ever increasing quantity. The Silesian coal basin is one of the four major basins in continental Europe: its prewar production was surpassed by that of the Ruhr basin, but in turn exceeded that of the Donets basin in the Ukraine and of the Franco-Belgian coal basin.

For political reasons, a planned exploitation of the Silesian coal basin had for a long time been impossible. Until 1914 it was divided by state boundaries between Germany (which possessed the most valuable part of it in Upper Silesia), Austro-Hungary (the Ostrava-Karvinna coal fields and the so-called Cracow basin), and Russia (the Dombrowa basin in Russian Poland). The interests of the three great powers were, to say the least, not parallel; moreover, ethnic frontiers between the Germans, the Poles and the Czechs crossed the basin and caused serious tension. After the first World War the Silesian basin was redistributed, somewhat more along ethnic lines, among Germany, Poland and Czechoslovakia, and as a result of that division new political difficulties arose among the three powers. The Germans claimed the part of Upper Silesia which became Polish, and the Poles the eastern part of the Karvinna field which was adjudged Czech. In 1938 the latter mines were transferred to Poland, and in 1939 both the Czech and Polish coal fields, including those of Cracow and Dombrowa, were forcibly incorporated into "Greater" Germany. Between 1939 and late 1944 the entire Silesian basin was administered from Berlin and run as one unit. During these years, particularly in 1943, the produc-

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LIGNITE

135 433 THE term lignite or brown coal[8] covers a number of class D coals (international classification of 1913) of comparatively low caloric value. This does not mean that all lignites are poor quality coals; on the contrary, some of them, mined in Czechoslovakia, Hungary, Rumania, and Bulgaria, are "rich" lignites whose caloric value often reaches that of the class B semibituminous coals. That is why they are so often classified together with hard coal in local statistics. A British authority on coal, Sir Richard Redmayne, says that 2.8 tons of German lignite are equivalent to one ton of hard coal; according to the *Economic Survey of Europe in 1949*,[9] that ratio should be 4.5. The latter source says that 1.7 tons of Czech lignite and 3 tons of that from unspecified "other countries" are equivalent to one ton of hard coal. The last ratio seems to be too general because much of the Danubian-Balkan lignite is as good as the Czech. These discrepancies between qualified authorities are cited here as proof that an exact evaluation in terms of coal of the total caloric value of the lignite produced by the captive part of Europe is very difficult.

It should be borne in mind that lignite is a specifically mid-European type of fuel. In 1947-1949, the last years for which complete statistical data are available, no less than 65 percent of the world production of lignite, except that of the Soviet Union, was concentrated in the present captive area of Europe. This percentage may be even higher today; the extraction of lignite is growing in the captive area while, with a few exceptions (Western Germany, Yugoslavia, Australia) it remains stationary elsewhere.

The bulk of mid-European lignite used to be consumed in the production of electric power or converted into briquettes whose

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caloric value is generally twice that of lignite (the German classification: *Steinkohle*, 7,000 calories; *Braunkohle*, 2,500 calories; *Briquetten*, 5,000 calories). Since the first World War an ever increasing proportion of lignite is being used in Middle Europe as a base for the production of synthetic nitrate and as a cheap raw material for producing semi-coke, various tars, and synthetic oil.[10] Thus lignite has become a basis for the powerful electric plants and chemical industries of Eastern Germany and Czechoslovakia and, on a lesser scale, for similar industries in the Danubian and Balkan countries. The exception is Poland. There, little lignite has been extracted hitherto, though reserves are considerable, because of the abundance of hard coal. Lignite as such or in the form of briquettes has been used thus far instead of coal for domestic purposes, transportation, and in every industrial production but metallurgy. Now the satellite governments are on the verge of discovering a method of converting lignite into metallurgic coke. A great lignite coking plant at Lauchhammer in Eastern Germany and another in Borsod in Hungary, now under construction, are expected to be put in motion in 1952. Should this new method prove practical, Eastern Germany, Hungary, and Rumania would depend in the future much less on the importation of Polish and Soviet coke for steelmaking than they do now.

The deposits of lignite are spread over the captive area south of the Berlin-Warsaw line, and they are particularly rich in Saxon Lusace (Lausitz), Sachsen-Anhalt, Thuringia, and Bohemia. In the peak prewar year of 1929 Bulgaria produced 1.6 million tons of lignite, Czechoslovakia 22.6 million, Hungary 7.0 million and Rumania 2.7 million tons. Germany produced 174.5 million tons of lignite, of which approximately two thirds were extracted in what is now the Soviet zone and Polish Silesia. The total production of lignite in the present captive zone in 1929 reached 150 million tons. In 1943, the peak production year of World War II, the output of Bulgaria rose to 3.8 million tons, that of Czechoslovakia to 27.6 million, and that of Hungary to 11.2 million tons, while the output of Rumania remained stationary. The

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total output of Germany, again mainly Eastern, reached 250.7 million tons. The total 1943 output of lignite in the present captive area may be estimated as exceeding 200 million tons. In 1948 all these figures were much lower (except in Polish Silesia, which produced about 4 million tons) but had a marked tendency to increase. In 1949 Czechoslovakia produced 26.5 million tons of lignite, Hungary 5.5 million, Poland 4.6 million, and Rumania 2.8 million. The official figure of lignite production in Eastern Germany in 1950 was 137 million tons, and the total output of this fuel in the captive area could be estimated as reaching 185 million tons.

The plans for 1953-1955 are as follows: Bulgaria is expected to produce 6 million tons of lignite in 1953, Czechoslovakia 38.8 million in 1953, Eastern Germany 225.2 million in 1955,[11] Hungary 25 million in 1954, Poland 8.4 million in 1955, and Rumania 7.7 million in 1955. The Czech and Eastern German targets are very high in comparison with their past and present output, and the Hungarian target seems to be unrealistic. Anticipating that the three plans to be terminated in 1955 may in fact be implemented earlier, a tentative figure of some 310 million tons of lignite may be accepted as that of the total output of lignite in the captive area to be achieved by the end of 1954 or the beginning of 1955. According to the ratios accepted by the *Economic Survey of Europe*, these figures would represent the equivalent of about 50.1 million tons of hard coal in Eastern Germany, 22.7 million tons in Czechoslovakia, and 12.1 million tons in the remaining four countries of captive Europe — a total of about 85 million tons. If other ratios were accepted as a basis for this computation, the total would be very much larger.

Together with the 133 million tons of hard coal which is the 1954-1955 target of the captive area, the grand total output of hard fuel for that area anticipated by 1954-1955 comes to 218 million tons of coal or coal equivalent, or more if the higher ratios of conversion are applied. Taken at its minimum, the goal of 218 million tons of coal or coal equivalent exactly coincides with the coal production of the United Kingdom in 1949, which was 218.5 million tons.

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Unfortunately it is impossible to compare the present or planned global output of both coal and lignite extracted in the captive area of Europe with the corresponding output of the Soviet Union. The Soviet statistics do not make a distinction between coal and lignite, although there is considerable difference between the caloric value of anthracite extracted in the Donets basin, for instance, and lignite from the so-called Moscow basin or several other basins located in Asiatic Russia. The entire coal and lignite production of the Soviet Union in 1950 was 264 million tons, and that projected for 1960 is 500 million tons.[12] Both these figures include far more coal than lignite, but the exact ratio between the two types of hard fuel is not available. The anticipated production of 133 million tons of hard coal and 310 million tons of lignite in the captive area by 1954-1955, a total of 218 million tons in coal equivalent, can be put side by side with a tentative figure of some 380-390 million tons of coal and lignite which Soviet Russia expects to extract by the same time.[13] The Soviet figure is undoubtedly larger than that of captive Europe, but it would be hard to say what percentage the latter would represent of the former — perhaps 55 or 60 or even 65 percent. The only really valid conclusion is that hard fuel produced in the captive area constitutes an extremely significant addition to that mined in the Soviet empire proper.

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COKE

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While at least two thirds of the Ruhr coal is of coking quality and thus can be used for steelmaking, this is not the case with the Silesian coal, only one third of which can be converted into coke. Moreover, the deposits of coking coal are concentrated in the western part of the Silesian-Ostravan basin. As a consequence, before World War II the German and Czech Silesias could produce much more coke than Poland in the eastern part of the basin. This situation has changed completely since the incorporation of German Upper Silesia into Poland. Outside the main Silesian-Ostravan basin there is much high grade coking coal in Lower Silesia, now Polish, and some in the secondary coal fields in Eastern Germany, Bohemia, Hungary, and Rumania. All in all, in comparison with Western Europe, the captive area is relatively poor in coking coal.

In 1929 Czechoslovakia produced 3,350,000 tons of coke, Poland 2,123,000 tons, and Rumania 72,500 tons; the output of Eastern Germany, which included German Silesia, was some 6,000,000 tons; that of Hungary was negligible, and Bulgaria produced no coke. The peak of war production in Eastern Germany was achieved in 1943, and in Czechoslovakia in 1944, when production reached almost 5 million tons. The last published figures of postwar coke production in Czechoslovakia date from 1948, when it reached 4,940,000 tons, and in Poland from 1949, when it reached 5,720,00 tons. Little coke was produced by the remaining captive countries, and figures pertaining to their output are not available.

Since 1948-1949, when long-range plans were launched for an extensive development of the steelmaking capacity in the captive area, the problem of its coke supply became more difficult. Eastern Germany, Hungary, and Rumania have to import

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coke from Poland and Czechoslovakia in order to cope with the demand of their steel plants, which have been rebuilt and are being extended. The exportation of coke interferes with the heavy requirements of the huge steel plants in the Silesian-Ostravan basin and puts much strain on the overworked railroad system of the captive area. As noted previously, the coal-poor countries of the area have to concentrate upon finding a practical method of converting lignite, of which they have much, into coke. It is probably premature to say that this problem has been successfully solved, or that lignite coke about to be produced on a large scale in Eastern Germany and Hungary will be as satisfactory for steelmaking as "ordinary" coal coke. Still, this minor technical revolution seems to be well on its way.

Not all satellite governments have disclosed their long-range targets for coke output. Among the large producers of coke, Poland expects to produce 9.9 million tons of coke in 1955 (in fact, earlier) and Czechoslovakia 8 million tons in 1952. This large increase of coke-making capacity cannot be achieved without the erection of many new coke plants. Several such plants of a very large size have already been put into motion in the Silesian-Ostravan basin or are still under construction. Eastern Germany anticipates for 1955 a production of 1.7 million tons of the new lignite coke[14] and of an undisclosed amount of coal coke which, on the strength of indirect indices, could be estimated at about 1.3 million tons. Rumania plans to produce 0.7 million tons of coke in 1955. The Hungarian target has never been disclosed — it cannot be high — and that of Bulgaria is negligible. It can be very tentatively estimated that the entire captive area expects to produce some 23-24 million tons of coke by 1954-1955.[15]

This tentative estimate may be compared with 19.9 million tons of coke produced by the Soviet Union in 1936 (the last known figure), and 44.3 million tons which was the top wartime production of Germany in 1943. France, without the Saar, produced only 8.2 million tons of coke in 1949.

It should be borne in mind that an average of about 1.4 tons

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135 433 of coking coal are required to produce one ton of coke, and somewhat over one ton of coke to make one ton of steel.[18] In the light of these figures, should the captive area of Europe produce, as it plans, 23-24 million tons of coke by 1954-1955 — which depends on the amount of coal it will mine — it would have little difficulty in covering the requirements of its planned production of steel, estimated at about 16.5 million tons by 1954-1955.

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OIL

THE captive area of Europe is much less rich in oil than in hard fuel. At the same time its resources in oil are much larger than those of Western Europe. In the interwar period the principal oil fields of the present captive area were situated in Rumania, and the much less important ones in Southern Poland. The Austrian and Hungarian oil resources were not exploited; in fact, they were not known to exist. Rumanian production rose steadily and reached its peak output of 8.7 million metric tons in 1936; since then, the output has been decreasing. In 1938 Rumania produced 6.6 million tons of oil and Poland 0.5 million; in the same year, oil began to flow from the new fields in Austria and Hungary. In 1939 the eastern and richer part of the Polish oil fields (Drohobycz and Boryslaw) was annexed by Soviet Russia. During World War II the Nazis brought up the Austrian output to 1.2 million tons (1944) and that of Hungary to over 0.8 million (1943), but they were unable to increase or even to maintain the level of Rumanian production, whose war peak was reached in 1942 with 5.7 million tons.

Rumanian oil fields and refineries at Ploesti and its vicinity were heavily bombed by the Allies during the war, but the ensuing damage was on the whole speedily repaired. When the Soviet authorities took over the Rumanian oil fields in the fall of 1944, they began by seizing much of the drilling material and refinery equipment and removing it to Russia. In consequence, the productivity of the Rumanian oil fields was drastically impaired. For the same reason, the productivity of the Hungarian and Austrian oil fields (all Austrian wells are situated in the Soviet zone) also declined sharply. The initial Soviet policy of indiscriminate plundering, however, was soon replaced by one of rebuilding all mid-European oil wells under Russian control

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— including Albania — and exploiting them to the utmost of their capacity. Since then, except for the insignificant Czechoslovak and Polish oil fields which are run by local governments, the really large captive oil fields have been operated by Soviet or mixed semi-Soviet companies. This means that they are managed by Soviet specialists using Soviet machinery and installations, according to the Soviet methods of extraction, which the Russians regard as more progressive than those used in the West. A huge and ever growing amount of money and energy is being invested in the extention of the existing fields and the search for new ones. The Soviet idea seems to be that the foreign companies which operated the oil fields in the captive area in the past were only looking for immediate profits and never did their job properly and that there is bound to be more oil all over Middle Europe. Insofar as Rumania and Hungary are concerned, the results of the Soviet efforts cannot be considered remarkable. The output of Hungary remains stationary, while in Rumania, partly because of Russian haste and the harshness of their methods, there have been until the present time constant difficulties of every kind with machinery, organization, and manpower — perhaps even some sabotage.[21] The best proof of this is the fact that no statistics on oil production in absolute figures have been officially published in Rumania since 1947; had there been good reason for boasting, the figures undoubtedly would have been made known. On the other hand, there is much evidence that the Russians have been more successful in Albania, and even more so in their zone of Austria.

The present rate of oil output in Rumania, and for that matter in most of the other captive or Soviet-controlled countries (there is no oil in the Soviet zone of Germany), is the subject of much speculation.[22] Every authority has its own set of estimates, and there are surprising differences between them. Only a few of these diverging estimates can be quoted here. Thus the *Economic Survey of Europe in 1950*, an official publication of the United Nations — bound as it is to accept the indices occasionally given by the satellite governments and to draw its conclusions from

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them — estimates that in 1950 the Rumanian output of crude oil reached 5.35 million metric tons, that of Hungary (which lagged behind its plan for 1950) 0.55 million, of Poland 0.18 million, and of Czechoslovakia 0.05 million metric tons. Together with the Soviet zone of Austria, whose production the *Survey* estimates at 1.5 million tons, the total 1950 output of the captive area should have reached 7.63 million metric tons — plus that of Albania, for which the *Survey* gives no figure.

According to the other authoritative sources, the above-quoted figure on the Rumanian output reflects the nonfulfilled plans of the Rumanian government rather than the actual level of production. Competent Rumanian experts residing in the United States claim that the 1950 oil output in Rumania did not exceed 4.2 or perhaps even 4.0 million tons.[23] On the other hand, it is possible that the *Survey* underestimated the output of oil in Austria and Czechoslovakia. Thus, according to accredited American sources with access to much special information, the 1950 output of oil in the Soviet-controlled section of Europe was: Albania, 1,915,000 metric tons; Austria, 2,247,000 tons; Czechoslovakia, 275,000 tons; Hungary, 490,000 tons; Poland, 138,000 tons; and Rumania, 4,360,000 tons — a total of 9,415,000 metric tons. This total is larger than most of the other estimates because of the high figures for Austria and Czechoslovakia, and in particular because of the surprisingly high figure for Albania.[24] It should be noted that the corresponding figure for the Soviet Union in 1950 is presumed to have been 37,600,000 metric tons. If the above-quoted American estimate is exact, it would mean that the output of oil in the captive part of Europe amounts to as much as one fourth of that of Russia proper.

Whatever estimate is accepted for 1950, it may be assumed that the 1951 output of oil in captive Europe will be somewhat larger. It is true that according to official admissions the 1951 oil production in Czechoslovakia and Hungary has been lagging behind the plan, but this does not necessarily mean that it has fallen below the level of the preceding year. On the other hand,

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315 it is claimed that by the middle of 1951 the Rumanian output
● 135 was 19 percent larger than by the middle of 1950, and the
433 Polish output in the third quarter of 1951 was 11 percent larger than that of the third quarter of 1950.[25] Moreover, new oil fields were discovered recently in the Soviet zone of Austria at Schwardorf south of the Danube, opening up, it is asserted, "fantastic possibilities" for the future.[26]

It is not easy to have an accurate idea of how much oil should be extracted in the captive part of Europe in the light of the investments and other measures foreseen in the long-range economic plans. The current plans anticipate that in 1955 Rumania should produce 10 million metric tons and Poland about 0.4 million; Czechoslovakia plans to extract 0.15 million tons by 1952. The planned figure for Hungary has never been disclosed, and neither have been those for Austria and Albania, both of which produce oil for the Soviet Union. Yet it is certain that the Soviet authorities operating the oil fields in the three last-mentioned countries *must* have definite targets which they have to reach by the end of 1954, when most of the present long-range economic plans of the captive countries will, in fact, terminate. These targets, together with the three disclosed ones, may add up to any figure between 13 and 16 million metric tons of oil; that is, between about 94 and about 115 million barrels — an output depending on many unpredictable elements. A tentative figure of 13 million metric tons to be reached by 1954 has been adopted in this study as a basis for further computations.[27]

This estimate for 1954 — which may be a low one — should be compared with the 60 million metric tons of crude petroleum the Soviet government expects to extract in 1960.[28]

To the tentative figure for 1954 should be added the growing output of synthetic oil produced in the northern part of the captive area.

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NATURAL GAS

IN Europe, even more than in America, most of the natural gas extracted as a by-product of oil refining had been for a long time wasted, and its utilization for lighting, fuel, and extraction of natural gasoline is a comparatively new process. International statistics do not exist for its production but only for its consumption in the given states, which is supposed to be equal to its effective collection within the same boundaries.[29] In 1930 Rumania, with its consumption of 1,206 million cubic meters of natural gas, and Poland, with 487 million, were responsible for nearly one hundred percent of the total European output of this gas. Several long-distance gas pipelines were laid in Rumania. The pipeline connecting Daszawa in the Polish oil fields with Warsaw was still unfinished by September 1939; the Russians redirected that line to Kiev. During World War II the extraction of natural gas was started in the present Russian zone of Austria and in Hungary.

The last known statistics for gas production in absolute figures in Rumania date from 1947, when it reached 1,176 million cubic meters; in Poland (which lost to Russia two thirds of its oil fields) from 1948, when it was 162 million cubic meters; and in Hungary from 1947, when it was 100 million cubic meters; and in Austria from 1949, when it was 59 million cubic meters. The Rumanian output was then small in comparison with its peak in 1936, when it reached 2,130 million cubic meters. Since 1947-1949 no figures for natural gas extraction have been published by any captive or Soviet-controlled country, and some of the percentile indices disclosed by these countries are contradictory. There are reasons to assume, however, that there has been since 1947 a steady though slow increase of that production in Hungary and a much more rapid one in Poland and Rumania.

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316 443 more favorable: although the output of black and brown coal was also lagging behind schedule, its extraction in the second quarter of 1951 was claimed to have exceeded that of the second quarter of 1950 by 26 percent (*Gospodarka Planowa*, 1951, No. 10). No detailed data are known for coal extraction in Bulgaria.

[6] 100 million tons (according to some indirect indices, 103 million) in Poland, 25 million in Czechoslovakia, 3.5 million in Eastern Germany, about 3 million in Hungary, about one million in Rumania, and about 0.5 million in Bulgaria. The Eastern German target, originally set at 4 million tons, was subsequently reduced to 3.5 million tons (the Law of 1 November 1951, *Wirtschaft*, Berlin, 1951, No. 44) — the only known instance of this kind. Yet various utterances of the chief planners in Poland and Rumania, and of Eastern Germany as well, leave little doubt that the long-range economic plans of these countries, supposed to terminate by the end of 1955, will be accelerated by one year, as has already happened with the Czechoslovak and Hungarian plans. In anticipation of that step, the writer assumes throughout his study that the figures of planned output in Eastern Germany, Poland, and Rumania in 1955 in fact pertain to 1954. An arbitrary but plausible figure of one million tons increase in the coal output in Czechoslovakia has been accepted for 1954 in comparison with the output planned for 1953.

[7] London *Economist*, 24 February 1951. According to the Soviet Fourth Five Year Plan, that figure should have been 86 million tons. Since the plan was overfulfilled, it was probably larger.

135 493 [8] Most of the descriptive data on lignite comes from an exhaustive study by Sir Richard Redmayne, *Encyclopædia Britannica*, 1943, Vol. V. p. 878 ff.

[9] United Nations, Geneva, 1950, p. 231.

[10] Redmayne, *op. cit.*

[11] In its original version of 1950 the Eastern German Five Year Plan foresaw a production of 205 million tons of lignite by 1955. The new figure of 225.2 million tons in 1955 comes from the revised version of the plan as adoped in the law of 1 November 1951, (*Wirtschaft*, Berlin, No. 44, 2 November 1951).

[12] The first figure is based on the indices of the coal production in 1951 in comparison with the preceding years, as published by the Soviet press. The second comes from Stalin's speech of 9 February 1946.

[13] In his speech of 7 November 1951, Beria stated that in the course of the past several years the output of coal in the Soviet Union has been growing on the average of 24 million tons per year. (*Pravda*, 7 November 1951).

[14] The vast Lauchhammer lignite coking plant now under construction (and possibly some other new plants) is expected to produce 300,000

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tons of coke in 1952, 1,300,000 tons by 1953 and 1,700,000 tons by 1955 (speech of 31 October 1951, by Heinrich Rau, Eastern German minister of planning, *Wirtschaft*, Berlin, 1951, No. 44). However the rapidly growing requirements of the new Eastern German metallurgic plants cannot be satisfied by the two locally produced types of coke and a large importation of coke from Poland. In its four year trade agreement with the Soviet Union of 27 September 1951, the Eastern German government assured itself the importation of 250,000 tons of coke from Russia annually for the period 1952-1955 (*Wirtschaft*, Berlin, 1951, No. 42).

[23] An estimate of the writer, based on the assumption that most of the hard coal extracted in Eastern Germany and Hungary, as well as in Rumania, will be converted into coke. Thus, the huge steel plant at Dunapentele (Stalinváros) in Hungary, now under construction, is expected to be run on Hungarian produced coke, converted from the local Pécs coal. The demand for coke by that plant alone may exceed one million tons.

[24] *European Steel Trends*, United Nations, Geneva, 1949, p. 40.

[25] An unpublished study on Czechoslovak industry by Dr. V. Paulat of New York.

[26] National Economic Plan for 1951, *Dziennik Ustaw* (Journal of Laws), Warsaw, 31 March 1951.

[27] Heinrich Rau, speech of 31 October 1951, *Wirtschaft*, Berlin, 1951, No. 44.

[28] A conservative estimate of the writer.

[29] See the *Information Bulletin* of the Rumanian National Committee, Washington, for 1950 and 1951, and *La Nation Roumaine*, Paris, *passim*.

[30] Here are some of the non-quoted estimates: the *Review of International Affairs*, Belgrade, 28 March 1951 — 3.5 million tons; *World Today*, London, Royal Institute of International Affairs, April 1951 — 3.8 million; *Etudes et Conjonctures*, Paris, a semi-official publication, January-February 1951 — 4.3 million; *Gospodarka Planowa* (Planned Economy), Warsaw, February 1951 — 5.46 million tons. The Belgrade magazine is biased.

[31] The first figure comes from the Rumanian National Committee, *supra*, the second from Dr. G. G. Rosa.

[32] According to the *Wirtschaftsdienst*, Hamburg, June 1951, Albania planned to extract 306,000 tons of oil in 1950. According to Musil, the Albanian correspondent of *Wirtschaft* (Berlin, No. 48 of 30 November 1951), the Albanian extraction of oil reached 192,000 tons in 1948 and increased to 307,000 tons in 1950.

[33] Figures taken from recent official reports.

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315 [26] United Press from Vienna, quoted after *Anglo-Polish Review*, London, October 1951.

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[27] An estimate of the writer, shared by some other researchers.

[28] Stalin's speech of 9 February 1946.

[29] United Nations *Statistical Yearbook*, New York, 1949-50, p. 145. This is no longer true. In 1945 pipelines were laid to convey natural gas from Rumania to the Soviet Union.

[30] Data for Rumania and Poland taken from the official reports on the fulfillment of the annual and quarterly plans.

382 [31] Most of the data which follow are based upon Jean Chardonnet, *Les conséquences économiques de la guerre*, Paris, Hachette, 1947.

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[32] J. A. Wilder, *Polish Regained Territories*, London, 1948.

[33] Dr. Paulat's study on the industrial development of Czechoslovakia, 1951.

[34] *Wirtschaft*, Berlin, *passim;* also advertisements in the Eastern German press.

[35] *Wirtschaft*, Berlin, 1951, No. 1.

[36] *Wirtschaft*, Berlin, 1951, No. 44 of November 2.

[37] See page 29.

[38] Speech of minister for planning, Dolanský, introducing the revised plan (end of February 1951).

[39] *Wirtschaft*, Berlin, 1951, No. 44 of November 2.

[40] Leuna plant employs 28,000 people, and is the greatest single plant in Eastern Germany. Karl Kühn (*Wirtschaft*, Berlin, 1951, No. 18) stated that Leuna could produce much more gasoline in 1950, because the installed capacity would permit such production, but that nitrogen-making had priority.

[41] Speech by Hilary Minc, *Trybuna Ludu*, Warsaw, 24 May 1951.

[42] United Nations *Statistical Yearbook*, New York, 1949-50. In 1937 Czechoslovakia produced 42,600 tons of benzol and Poland 31,100 tons; in 1936 Germany, outside the Bizone, produced 131,000 tons.

[43] *Ibidem*, p. 110.

37 [44] Professor H. Herbich, quoted by S. Rotarski, "The Unexploited Resources of Europe," in *Eastern Quarterly*, London, January 1950. The four rivers are the Columbia, Colorado, Sacramento, and San Joaquin.

[45] Speech by Heinrich Rau on 31 October 1951. See footnote 14.

[46] *Trybuna Ludu*, Warsaw, 24 October 1951.

[47] Dr. V. Paulat. See footnote 17.

[48] Exhaustive data on that problem in *Wirtschaft*, Berlin, 1950, No. 51.

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ments made by single countries of the area are systematically exchanged with Russia and other captive countries, and many thousands of Soviet, Czech, Eastern German, and Hungarian experts, technical advisers, and skilled specialists are employed by the less advanced countries of the area. It is difficult, if at all feasible, to compare the sum of technical knowledge behind the Iron Curtain to that in the free world. Undoubtedly, the countries of Eastern Europe lag behind the free world in all technical respects, but it would be imprudent to believe that they are not making much technical progress.

The area as a whole and the single countries within it, except for Eastern Germany and Czechoslovakia, are, generally speaking, self-sufficient in foodstuffs. It also has sufficient reserves of solid and liquid fuel. Using both these reserves and their hydroelectric power, it can produce an increasing amount of electric power. On the other hand, the area is poor in metallic ores. There is much bauxite in Hungary, and supplies of lead and zinc in Poland. Yugoslavia and Bulgaria are rich in many ores. However, there is not enough iron or manganese ore in Eastern Europe, far from enough copper, no tin, and a lack of many supplementary metals of significance to modern metallurgy. Chemical raw materials are abundant, especially in Poland and Rumania, but the area lacks phosphate rock and is poor in sulphur compounds. It has no jute, very little cotton, not enough wool, and no rubber. The resulting limitations to industrial expansion are obvious. They are offset to some extent by the existence of dormant resources and by the fact that the southern Balkan area has not yet been properly explored. It is possible that the Balkan mountains contain more mineral wealth than has been assumed hitherto. Soviet geologists are certain that this is so. Some deficiencies in raw materials can be met, as was the practice under Hitler, by using substitutes such as synthetic oil, rubber, yarn, and plastics. This area can

8: Black S-4 (no date) 1954 El Europe El

produce many substitutes. Today, shortages of raw materials are covered by imports from abroad, most of these from the Soviet Union. Economic autarky is not possible in Eastern Europe alone, but the Soviet bloc, including Russia and China, is almost self-sufficient in raw materials.

Under the unrelenting pressure of Moscow, the output of machinery and plant equipment in this area is making steady and rapid progress. The period when most of these countries must depend on importation of machinery from the West is almost over. Were all Western sources of industrial machinery to be completely closed to the captive area, its industrialization would be slowed and delayed but not halted. As things stand now, much industrial equipment is still imported from Western Europe, legally or illegally, and the Soviet Union can take care of the other shortages. Czechoslovakia, Eastern Germany, and, to a lesser degree, Hungary produce machinery above their home requirements, and part of the surplus goes to other captive countries, to the Soviet Union, and to China.

According to United Nations data,[2] the 1951 indices of industrial production in the single countries of this area in comparison to 1938 were as follows: Eastern Germany, 115 per cent; Czechoslovakia, 168; Rumania, 206; Hungary, 267; Poland, 270; and Bulgaria, 345 per cent. In considering these figures, it is necessary to bear in mind that 1938 was not the peak production year in Eastern Europe. Between 1938 and 1943-44, the industrial output of Czechoslovakia and Hungary rose noticeably owing to the erection of many new industrial plants, so that only a part of their industrial expansion since 1938 can be attributed to the efforts of their present governments. Poland's industrial potential increased in 1945 by at least one third, due to the acquisition of ex-German Silesia. Bulgaria's industrial po-

[2] *Economic Survey of Europe Since the War* (Geneva: United Nations, 1953), p. 239, Table 1.